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ABSTRACT

This study was designed to investigate aspects of childhood social functioning in early interaction and socialization patterns of normal families. Sixteen families with a child between 1 and 3 years of age, and a second child born when the study began, were observed over a 2-year period. Intelligence tests were administered to both children when the second child was 5 and 7 years old. Verbal intelligence scores were taken as an estimate of the quality of social skills and adaptation at preschool age. Videotaped interactions were divided into about 1100 episodes for each family, and were coded according to categories of formal interactional and content-related aspects of family socialization. Three items of data were selected for detailed presentation: "situation control," "transmission of rules," and "affirmation of position." Findings indicated that: (1) time-specific changes in dyadic socialization patterns occur after the arrival of a new child and expand over a 2-year period; (2) socialization activities within families vary according to intensity and time-specificity; and (3) families vary according to mothers' and fathers' coordination and cooperation in socialization activities. Discussion considers conceptual and methodological implications for the detection and isolation of family-specific precursors of pathological personality development. (RH)

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A LONGITUDINAL STUDY OF CHANGES IN SOCIALIZATION AND INTERACTION PATTERNS IN FAMILIES

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Summary

Early interaction and socialization patterns in normal families are investigated to find specifics of childhood social functioning. The whole families' contribution to early childhood socialization, and time specific patterns of early socialization practice within the family are considered. 16 families with a child betwen one and three years old and a second child born at the beginning of the study were observed over a two year period. Intelligence tests were administered to both children when the second child was five and seven. Verbal intelligence scores were taken as an estimate of the quality of the child's social skills and social adaptation at preschool age.

Videotaped family interactions were divided into episodes, and coded according to categories of formal interactional as well as content-related family socialization aspects. Log-linear analyses were conducted for all items separately. Three items were selected which showed significant differences in the quality of children's later verbal ability: "situation control", "transmission of rules", and "affirmation of position." Binomial tests comparing these items revealed group specific differences. An additional prospective analysis revealed significant correlations between single families' degree of diverging or converging socialization practices and children's verbal IQ scores. Discussion will consider both conceptual and methodological implications for the detection and isolation of family-specific precursors of pathological personality development.

Introduction

Socialization patterns occur in various social contexts of the child, such as the family, the neighborhood, and the school, and are preferred targets of many longitudinal studies in developmental psychology focusing on social development. Details of these contexts are deemed prerequisite for analyzing fluctuations in the course of individual developmental trajectories. During the life-span, contexts may differ according to their relevance for individual development; the social context of the family, however, is believed to be the most influential proximal context for infants, children and perhaps early adolescents and plays a major role for social development.

This contribution does not focus on a pathological sample, it focuses on a normal sample of families having infants. Results will be presented that illustrate changes in socialization practices during a two year period after a new child's arrival. The analysis of "normal" samples may have advantages for further analyses of pathological samples: First, only few studies are available in clinical psychology that have investigated shifts in socialization practices and adaptation processes in normal families; and second, in most studies, materials documenting everyday family socialization patterns during early development are not available.

Adaptation processes in families. In this contribution, the focus is on normal interaction formats that might be relevant for a well-functioning adaptation process during a period of dramatic changes inside the family, that is, early childhood. The study of socialization in "well-functioning" or non-pathological contexts may provide us with guidelines for a better

understanding of "non-normal" socialization patterns and their detrimental impact on the course of social development leading to malfunctioning in individuals.

The comparison of groups with and without symptoms indicative of malfunctioning such as depression, regression, or conflictual and distant relationships is one possible avenue to find keys that help unlock the secrets of the genesis of maladaptation; such comparisons provide the opportunity for the reconstruction of socialization patterns possibly associated with functioning or malfunctioning. In most research, however, real behaviors in earlier stages of development have to be reconstructed by subjects at a later stage through the help of questionnaires, retrospective interviews or medical reports of symptoms. In most cases, documents are not available that could bring to life the subjects' social context during their early development.

Systematic shifts in socialization patterns over time are valuable witnesses of developmental conditions that may unfold their impact immediately afterwards, that is, during the same or the next developmental step, or after a longer period of time at a later stage of inidvidual development. Thus, the availablility of data describing socialization practices in families during early childhood might be of use to understand later formats of individual development. Socialization patterns mirror general as well as specific modes of communication inside the family, they are predetermined by cultural expectations and may generate, even in very intimate mother-child exchanges, rather preestablished forms of interaction. In addition, socialization patterns are also influenced by the individual temperaments of the exchange partners within the family.

Developmental challenges within the family. Socialization patterns occur in

relationships. Children's basic relational context is the family with its various dyadic and triadic constellations such as mother-child, father-child, or sibling-sibling dyad, or father-mother-child triad etc. The relational context of the family is not a static structure but a network that changes continuously over time. The family as a group consists of different individuals who are in different stages of their own developmental course. The family, as it runs through different stages, has to adapt to varying conditions and to cope with a number of normative crises: It has to accomplish, similar to the developing individual, a series of family developmental tasks (Rodgers, 1973, Duvall, 1977, Aldous, 1978, Olson & McCubbin, 1983).

For example, one of the most crucial tasks of an expanding family, when a child is born, is to find a new balance and to integrate the new family member. For the other members, this implies a process of new orientation and even perhaps reorganization of their extant relationships. To give an example of a concrete challenge, after the arrival of a second child, the first child has to find a new position and to rearrange his or her relationships with the parents. After the basic integration process, however, it is the new child who, after he or she became a full-fledged family member, has to gain a position of his or her own and to contribute to the family's format of interacting. Moreover, as children during their early rapid development are in very sensitive stages concerning social experiences, parents are required to react with an appropriate flexibility to their children's changing needs. The beginning of growing mutual understanding and continuous adaptive transition that normally occurs within families, can also be the onset of growing mismatch and maladaptation among family members. As the family apparently is the arena for the children's major interactional experiences, we can assume that the family contributes

substantially to the inner representation of relationships in the individual child, who piles up social "knowledge" or an "internal working model" (Bowlby, 1969; Main, Kaplan, Cassidy, 1985) that is activated whenever new relationships are to be established or social behavior is to be performed (Sroufe & Fleeson, 1986, 1988).

Parallels for sensitive periods with regard to adaptive and maladaptive parenting behavior during later stages of individual development can be found, for example, during early adolescence, where parents time and again have to change their socialization standards to adapt to major shifts in their children who, during this period, need more space and support for exploring, questionning, and testing extant relationships and communication patterns. These transitional challenges are likely to create a number of crises that are manifest in "mundane" conflicts among family members, that is, in everyday quarrels about trivial topics (Hill, 1980; Steinberg & Silverberg, 1987; Hill & Holmbeck, 1987; Kidwell, Fischer, Dunham, & Baranowski, 1983; Gjerde, 1986).

Selected results are presented here that are part of a longitudianl and observational study (Kreppner, Paulsen, Schuetze, 1982, Kreppner, 1989), in which family interaction and socialization was registered (by means of videotechnique) over the first two years after the birth of a new member, the second child. The presentation centers on two topics: First, the analysis of a general shift in selected socialization items indicative of handling stress and conflict in dyads within the family, and, second, the illustration of variations among family subgroups. Deviations from a general socialization trajectory in early development are considered to be interesting candidates for creating information about the possible onset of a potential maladaptive processes leading to patterns of misunderstanding and mismatch in family interaction.

Design and Results

Design. 16 families were observed for a two year period after the arrival of a second child. In addition, the parents' SES (years of education, status of profession, grandparents' professional status) was assessed and the second children's IQ measured at age 5 and 7. The two year period of intense family observation was partitioned into seven segments covering about four months each, centering around 4/6 weeks, 4/5 months, 8/9 months, 12/13 months, 16/17 months, 20/21 months, and 23/24 months after the second child's birth. Observations were conducted in the families' homes in unstructured natural everyday situations with one or both parents present dealing with one or both children. The families were videotaped for about one half to one hour during each visit, and from each of the seven segments two half hour videotapes were selected for further analysis. Thus, for each family, seven hours of videotaped interaction was obtained. The videotaped observations were partitioned into episodes lasting 20 - 40 seconds each, yielding about 1100 episodes for each family. All episodes were scored according to a number of categories describing formal and content-specific aspects of family interaction and socialization. For example, every episode an initiator and a target are defined indicative for the dynamics in dyads or triads. Moreover in every episode a specific socialization practice can be scored. Thus, the combination of these two aspects provides a rich picture of socialization practices in different dyads. Time-specific analyses of these combinations bring additional information about changes of socialization in particular dyads. Details of all categories and classifications used in the study are described elsewhere (Kreppner, 1984; Kreppner, 1989; Von Eye & Kreppner, 1989).

The obtained corpus of data allows a meticulous analysis of time-specific

and dyad-specific family socialization activities: For example, an analysis of frequencies cross-classified according to selected aspects such as family dynamics (various initiative - target dyads) by socialization activities (situation control, affirmation, transmission of rules, etc.) by the seven age periods, may provide us with precise information about general trends (baselines) of interaction and socialization changes as well as variations among families (deviations from baselines).

From the corpus of data, three items that describe socialization practices within the family are presented in detail here. The items "situation control", "transmission of rules", and "affirmation of position" indicate aspects of conflict management and negotiation in socialization. They have been selected after an overall and explorative log-linear analysis including all socialization items used in the category system - both structural and pragmatic aspects (see Kreppner, 1984) - yielded models showing a strong main effect for family differences for these three items. Therefore, these items seemed good candidates for demonstrating the two different aspects of our analyses, general trends of and variations among families.

Insert table 1 about here

Two of these items represent parent-child directed activities ("situation control" and "transmission of rules"), the third is a child-parent directed item "affirmation of position", in which children try to gain a position of their own in the family, often against the intention of their parents.

General trends of family socialization. Histograms describing variations in the parental-child dyadic frequencies of the two socialization items "situation control" and "transmission of rules" display similar trajectories for both items with a general increase of frequencies during the first 12 to 16 months followed by a decrease thereafter.

Insert figure 1 about here

Binomial tests (indicated at bottom line of figure) comparing parental activities toward both children show that parent-child directed socialization is significantly stronger for the first child during the first year, but that this difference disappears during the child's second year. Under a statistical perspective, the frequencies representing the sums of parental activities follow a rather systematic course: In a log-linear analysis (Fienberg, 1980, Agresti, 1984, Von Eye, Kreppner, Wessels, 1989), they could be completely described and modelled by only two functions: A linear increase as one trend, and a quadratic function as the other.

Insert table 2 about here

This points to an intensification of parental control and rule transmission during the first half of the time period under study followed by a relief in the second half. This course may mirror an adaptation process in family socialization: By the end of the two year period, a higher level of control and rule transmission has been established compared to the initial level immediately after the arrival of the new child. The time-specific frequencies for the different parent-child dyads reveal that the amount of socialization targeted toward the first child is increased before both parents begin to raise their amounts for the second child. The father's role in contributing to family socialization for the first child is another interesting detail: In general, fathers' frequencies for both children are smaller than mothers'. However, during the first three time periods under study (6/8 weeks, 4/5 months, and 8/9 months), the fathers' socialization activities for the first children are comparably high. Furthermore, as binomial tests show, parents tend to equalize their attention to both children at the end of the two year period.

The analysis of frequencies representing the third selected item, both

children's "affirmation of position", yielded a consistent majority in the first child's affirmation over time with only one exception during the 20/21 months segment, in which, according to binomial tests, both children did not differ significantly.

Insert figure 2 about here

Another interesting detail is revealed when the two children's parent-directed activities are considered separately: During the critical phase of change, between the 4/5 months and the 16/17 months segments of the two year period, the first child is equally affirming his or her position against both parents (no significant differences in frequencies according to binomial test). In addition, a steep increase at the 8/9 month segment is obvious, the time period in which the second child begins to crawl and tends to disturb the first child's activities by being more mobile than during the first eight months. The second child's activities directed towards both parents vary unsystematically: The overall frequencies are generally smaller and can only be interpreted as an increase of affirmative behavior after the first year, with a father/mother equality at the 12/13 months and 21/22 months segment.

These general trends illuminate the course of socialization patterns inside all families. As these histograms and their relation-specific frequencies show, an increase of socialization activities during a "normal" transition period points to potential crises and a new orientation concerning the management of extant relationships. In the following analyses, the focus will be on the exploration of variations among families.

Variations among families in three socialization items. A series of cluster analyses including the sum of three difference scores: Differences between mothers' and fathers' socialization activities toward both children in each

family, as well as difference scores between mothers' "situation control" and second children's "affirmation of position." The analysis yielded a clear picture of two distinct family groups, subdividing a minority group of five families from the majority of the other eleven families in the sample.

Insert figure 3 about here

Variations among families were further investigated: First, the difference scores of the three items used in the cluster analysis were included in a rank order correlation analysis with the parents' educational and social background (SES) and the second child's mean verbal intelligence score at age 5 and 7 (VIQ) as an indicator of the children's achievement in social skills. Intelligence was measured by a German version of the Wechsler Intelligence Test for Preschoolers, the HAWIVA (Schuck & Eggert, 1976) and a parallel test, the AID (Kubinger & Wurst, 1985). The table of correlations (Spearman rho's) indicates that no correlation exists between the parents' SES scores and the three difference scores. However, two of the three difference scores show a moderate but significant correlation with the second children's verbal IQ scores. That is, high differences between parents are associated with children's low verbal IQ scores. Since the correlation between SES and VIQ is also considerably high, one may draw the conclusion that correlations between parents' early socialization difference scores and children's verbal IQ scores identify a segment of contextual influence that is <u>different</u> from segments covarying with the families' SES scores.

Insert table 3 about here

The second step for analyzing family differences in more detail consisted of a separate comparison encompassing the five families constituting the minority group in the discriminant analysis with three other groups of five families, each sampled randomly from the majority group. The three subgroups

of five randomly assembled from the majority group were compared among each other, and, in addition, each of these subgroups was compared with the minority group. Results of these comparisons (binomial tests) are presented in a condensed format in table 4.

Insert table 4 about here

Differences are indicated only in those cases in which the minority group showed significant deviations from all three other groups and in which the majority groups had no significant differences among each other. As a general result, the differences are mostly occurring during the second year and tend to emphasize the mother-second child directed socialization activities.

Interestingly, mother-first child socialization differences occur during the first months and during the critical period between 8/9 months and 20/21 months, with fathers involved in the 16/17 months period. This appears to be a pattern occurring in socialization activities directed toward both children. The children's "affirmation of position" is different between minority and majority families only during the 8/9 months and 12/13 months period.

In order to obtain an even more detailed picture of these differences, trajectories of mothers' and fathers' socialization concerning both children were compared with each other: The minority group and a random sample of the majority group were analyzed as to variations in parental socialization over time (see figures 4 and 5).

Insert figures 4 and 5 about here

The comparison portrays two major differences: First, mothers' frequencies of "situation control" and "transmission of rules" tend to be generally higher in the minority group than in the majority subgroup; second, maternal and paternal frequencies are more similar in the majority subgroup than in

the minority group; third, differences in the minority group are most salient during the middle periods, that is, between 8/9 months and 20/21 months; and fourth, fathers' socialization frequencies directed toward their first children are higher in the majority than in the minority group and points to the attempt to compensate for the first children the mothers' intense care for the new children during the first months.

This comparison elucidates a qualitative difference of family socialization between the two groups: Parental cooperation and coordination in the majority subgroup is contrasted by an obvious pattern of disparity and discoordination in parental socialization in the minority group at specific time periods. A comparison of the mother-child2 "situation control" and the child2-mother "affirmation of position" shows a similar picture: Whereas a similar course is displayed in the majority group comparison pointing to a mutuality in the process of adaptation and social development during the integration and expansion period, the minority group's trajectories stand out for their dissimilarity and mismatch or disharmony between mother and child.

Insert figure 6 about here

As all three figures show, differences are both highly time-specific and constellation-specific. This may have major implications for the children's individual social development in the two different family contexts, the majority and the minority group: Drawing from the notion of an "internal working model" these time- and constellation-specific differences might have a considerable impact on the formation of social strategies and social behaviors in the individual children.

Conclusions and Discussion

In sum, results of this exploratory study can be summarized by three points:

(1) Time-specific changes in dyadic socialization patterns occur after the arrival of a new child and expand over a two year period; they point to the families' attempt to establish a new balance in an expanded system. A combination of a linear with a quadratic trend supports the idea that, after an intensification of socialization, a new level of interaction is reached indicating a general alteration in the families' relational network and an integration of the new member.

(2) Socialization activities within families vary according to intensity and time-specificity. Parents differ in their expectations about children's abilities to understand rules at specific times. This may contribute to scheduling conflicts where parents' expectations of developmental skills and the children's actual skills and needs do not match.

(3) Families vary according to mothers' and fathers' coordination and cooperation in socialization activities. Whereas a remarkable similarity in parental socialization trajectories and a compensatory function of fathers as to participation in socializing the first child prevails in the majority group, discoordination seems to be obvious when trajectories from the minority group are compared to one another.

As a consequence of this exploratory research one can draw the conclusion that most parents coordinate their socialization activities and cooperate in their common venture. Deviations from a parental cooperative pattern may imply some specific and perhaps detrimental experiences for the child. Deviating patterns in family socialization such as high maternal control, low developmental sensitivity, and a low degree of parental cooperation and coordination accompanied by a general disregard for the individual child's developmental rhythm may lead to an inner representation for social relationships fostering maladaptation that may generate symptoms such as

learned helplessness, identity problems, or low self-esteem in later stages of development.

Nearly twenty years ago, a harmony/disharmony paradigm was introduced by Diana Baumrind (1971 a, b) for clarifying a parenting style characterized as a kind of mystery, where the parents do not openly instruct or even push their children, but nonetheless children are functioning well. It appears as if the children in these families already "knew" what their parents wanted them to do. Today, after the family context has been the target of intensive studies with a far more sophisticated methodology, this phenomenon still needs explication.

Results found in this study are in line with results in other studies featuring a family-context orientation: For example, a correlation has been found between parental competence and spousal support in parenting (Dickie & Carnahan, 1980; Dickie & Matheson, 1984); and fathers' engagement with their infants has been found to be positively related to marital engagement in the family (Belsky, 1984). More specifically, the results found in the present study can also be seen as a first step in the attempt to amass more details regarding the family developmental aspects which are present and influential in an infant's social context during sensitive periods of his or her individual development.

As a consequence of this small and exploratory study, I would like to make a plea for more extended longitudinal projects comprising all members in a family in order to gain more detailed information about the processes of adaptation or maladaptation in the different dyadic relationships. In this way, the onset of both adaptive and maladaptive socialization patterns may be studied by following up over a longer period of time different modes that are established to cope with a new child's arrival and development. Long term family research in different stages of children's individual

development maximizes the chance to bring to the fore the most crucial events in the individual-family interaction that are assumed to impinge on the inner representation of relationships that are "carried forward" (Sroufe & Fleeson, 1986) in later individual social development.

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Table 1
Log linear models for all socialization items (structural and pragmatic aspect)
Factors are Family (F), Initiative (I), Target (T), and Age period (A)

Socialization items	Models	DF	Chisq	p
Structural aspect				
Situation Control	[F], [A], [IT]	1311	1462.7	.002
	[F], [AI], [IT]	1293	1410.6	.012
	[F], [AT], [IT]	1293	1376.7	.052
	[FA],[FI], [IT]	1176	1177.4	.483
Continuation of Contact	[FA], [AIT], [FIT]	990	1261.2	.000
	[FAT],[FIT], [AIT]	720	854.1	.000
	[FAT],[FIT], [FAI]	480	486.5	.409
	[FAT],[FIT], [FAI],[AIT]	450	426.4	.762
Integrative Activity	[AT], [FIT],[FAI]	750	876.6	.000
	[FT], [AIT],[FAI]	795	991.8	.000
	[IT], [FAT],[FAI]	555	597.7	.102
	[FIT],[FAT],[FAI]	480	457.6	.762
Affirmation of Position	[F], [A]	1322	1661.0	.000
	[F], [T]	1325	1591.4	.000
	[F], [I]	1325	1322.4	.515
	[F], [I], [A]	1319	1274.5	.806
Pragmatic aspect				
Caretaking Activity	[F], [AI], [IT]	1293	1397.3	.022
	[F], [AI], [IT], [AT]	1275	1366.7	.037
	[FA],[AI], [IT]	1203	1244.5	.198
	[FI],[AI], [IT]	1248	1277.0	.278
Offering New Activities	[FT], [FAI], [AIT]	795	1010.3	.000
	[AT], [FAI], [FIT]	750	904.1	.000
	[FAT],[FAI], [IT]	555	577.3	.248
	[FAT],[FAI], [AIT]	525	550.8	.210
Transmission of Rules	[F], [T], [I], [A]	1316	1417.5	.026
	[F], [T],[AI]	1298	1398.0	.027
	[F], [I],[AT]	1298	1302.0	.464
	[F], [A],[IT]	1311	1282.9	.706
Mirroring and Taking Up	[FIT], [FAI]	768	939.7	.000
	[FIT], [FAI], [AT]	750	896.8	.000
	[FIT], [FAI], [AIT]	720	825.0	.004
	[FIT], [FAI], [FAT]	480	436.5	.923

Table 2

Log-linear analyses of items "situation Control" and "Transmission of Rules" by using a design matrix defining a linear and a quadratic trend for the frequencies

A: Item: "Situation Control"

Age Period	Design Matrix: Linear Trend	Quadratic Trend	Frequencies: Observed Freq	Expected Freq	Standardized Residual
1	1	-5	123	123.40	-0.036
2	2	0	159	160.99	-0.157
3	3	3	199	193.26	0.413
4	4	4	208	213.50	-0.376
5	5	3	225	217.04	0.540
6	6	0	193	203.03	-0.704
7	7	-5	179	174.78	0.319

Goodness of Fit Tests:		Gamma	SE	Ga/SE
LR chi square	= 1.231	0.042	0.008	4.943**
Pearson chi square	= 1.228	0.058	0.015	3.870**
Degrees of Freedom	= 4			

B: Item "Transmission of rules"

Age Period	Desing Matrix: Linear Trend	Quadratic Trend	Frequencies: Observed Freq	Expected Freq	Standardized Residual
1	1	-5	140	132.58	0.644
2	2	0	158	166.53	-0.661
3	3	3	179	195.70	-1.194
4	4	4	236	215.16	1.421
5	5	3	233	221.31	0.786
6	6	0	192	212.97	-1.437
7	7	-5	198	191.75	0.451

Goodness of Fit Tests:		Gamma	SE	Ga/SE
LR chi square	= 7.222	0.033	0.008	4.071**
Pearson chi square	= 7.183	0.061	0.015	4.231**
Degrees of Freedom	= 4			

Table 3

Rank Correlations (Spearman)
N = 15

Within Family
Differences of Selected Variables with VIQ and SES

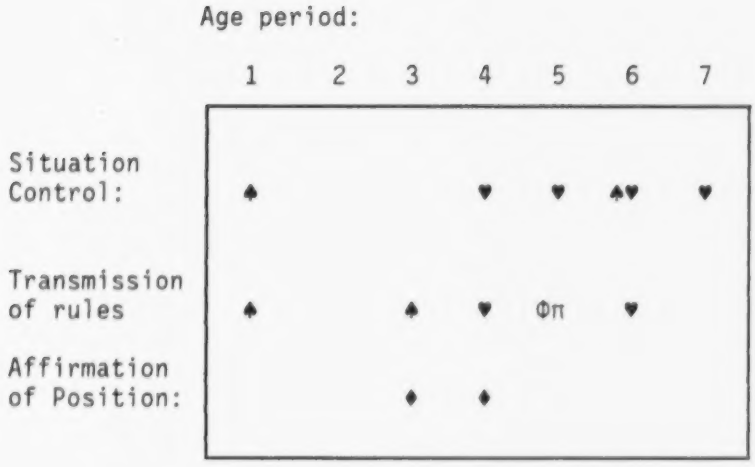
	VIQ	SES	DSCMF	DTRMF	DSAPCM
VIQ					
SES	.616*				
DSCMF	-.460*	-.159			
DTRMF	-.466*	-.104	.795**		
DSAPCM	-.402	-.101	.885**	.769**	

* p< .05
** p< .01

VIQ : Verbal IQ Scores of Second Children
SES : Social Background of Parents
DSCMF : Difference Scores Situation Control Mother-Child2 vs. Father-Child2
DTRMF : Difference Scores Transmission of Rules Mother-Child2 vs. Father-Child2
DSAPCM : Difference Scores Situation Control Mother-Child2 vs. Affirmation of Position Child2-Mother

Table 4

TIME SPECIFIC DIFFERENCES: FAMILY CONSTELLATIONS WHICH DIFFER BETWEEN THE EXTREME GROUP AND ALL OTHER CONTROL GROUPS WITH NO DIFFERENCES AMONG CONTROL GROUPS



Legend:
Directions and Constellations:

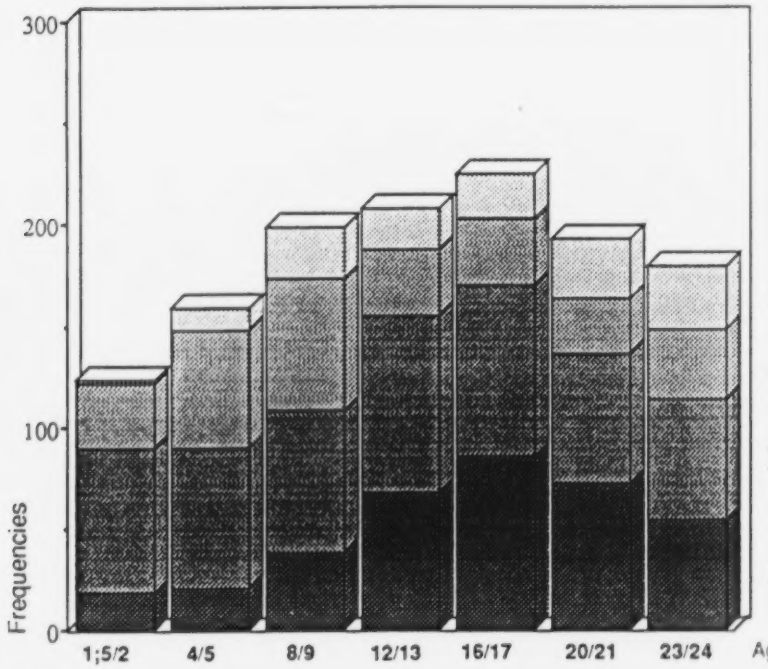
♠ : M-C1
♥ : M-C2

Φ : F-C1
π : F-C2

♦ : C2-M

Figure 1

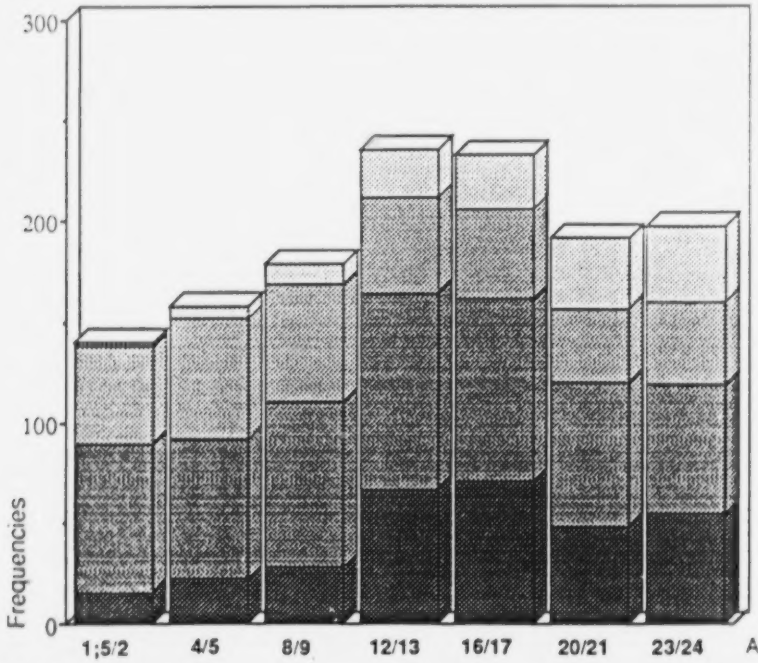
Situation Control of Mother and Father to First and Second Child



	1;5/2	4/5	8/9	12/13	16/17	20/21	23/24
M: C1 > C2	**	**	**	NS	NS	NS	NS
F : C1 > C2	**	**	**	*	NS	NS	NS

Age of Second Child in Months

Transmission of Rules of Mother and Father to First and Second Child



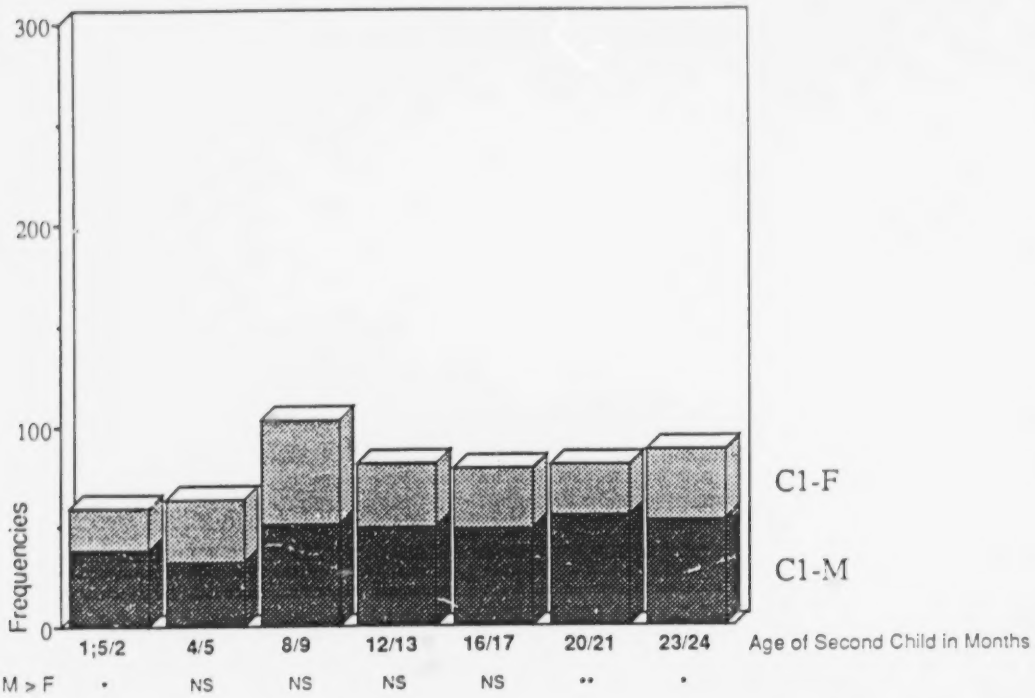
	1;5/2	4/5	8/9	12/13	16/17	20/21	23/24
M: C1 > C2	**	**	**	NS	NS	*	NS
F : C1 > C2	**	**	**	**	*	NS	NS

Age of Second Child in Months

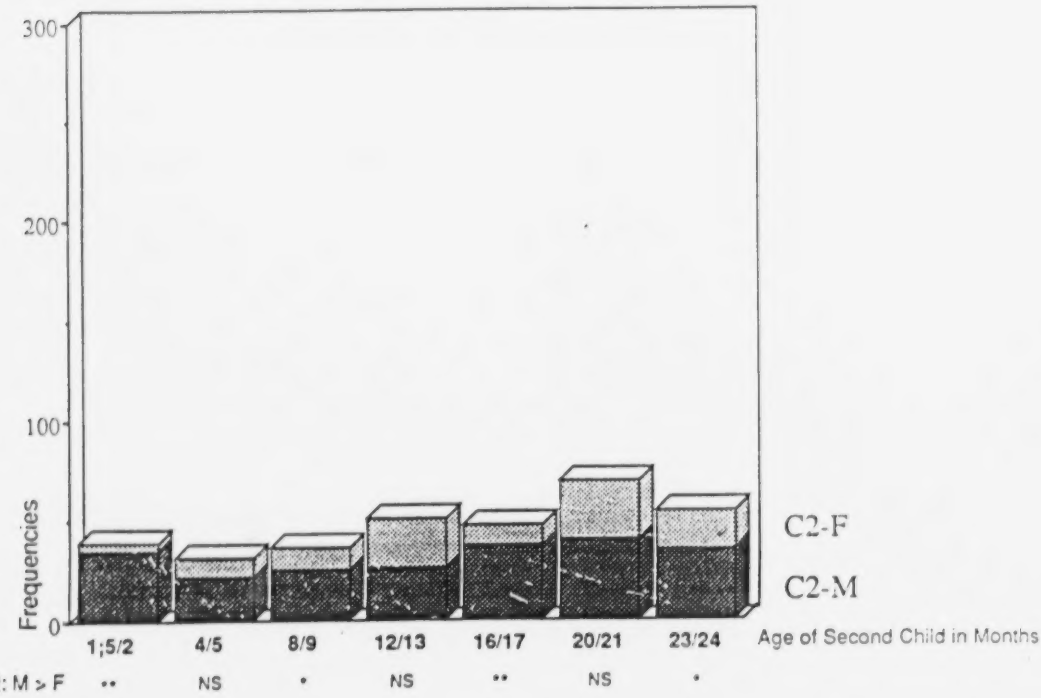
* p <= 0.05 (Binomial Distribution)
** p <= 0.01

Figure 2

Affirmation of Postion of First Child to Mother and Father



Affirmation of Postion of Second Child to Mother and Father



* p <= 0.05 (Binomial Distribution)
** p <= 0.01

Figure 3

Clusteranalysis for within family concordance index (City block)
Sum of differences between maternal and paternal "situation control" and "transmission of rules" as well as between maternal "situation control" and second child's "affirmation of position"

Rescaled Distance Cluster Combine

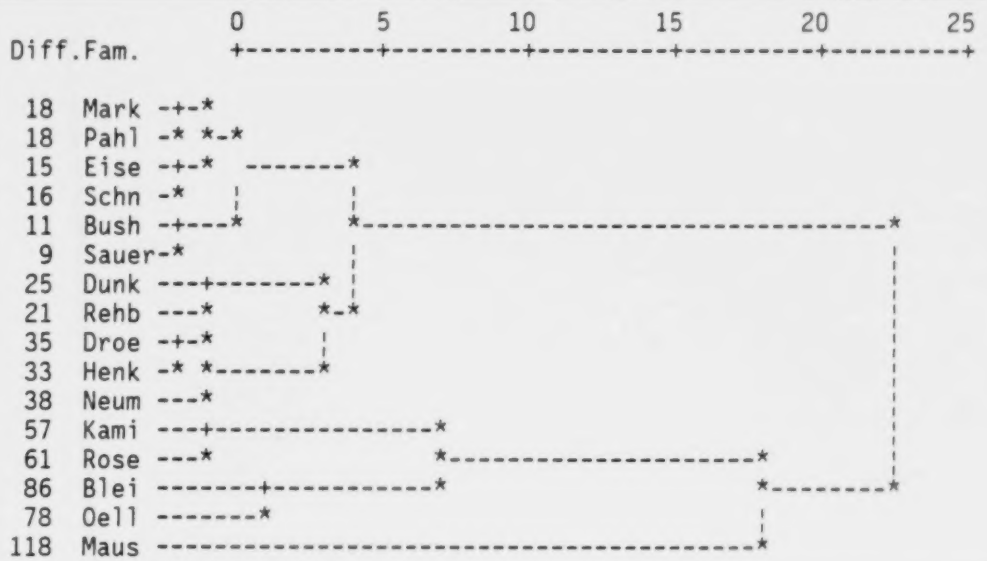


Figure 4

Parental Cooperation in Two Families Clusters over Time

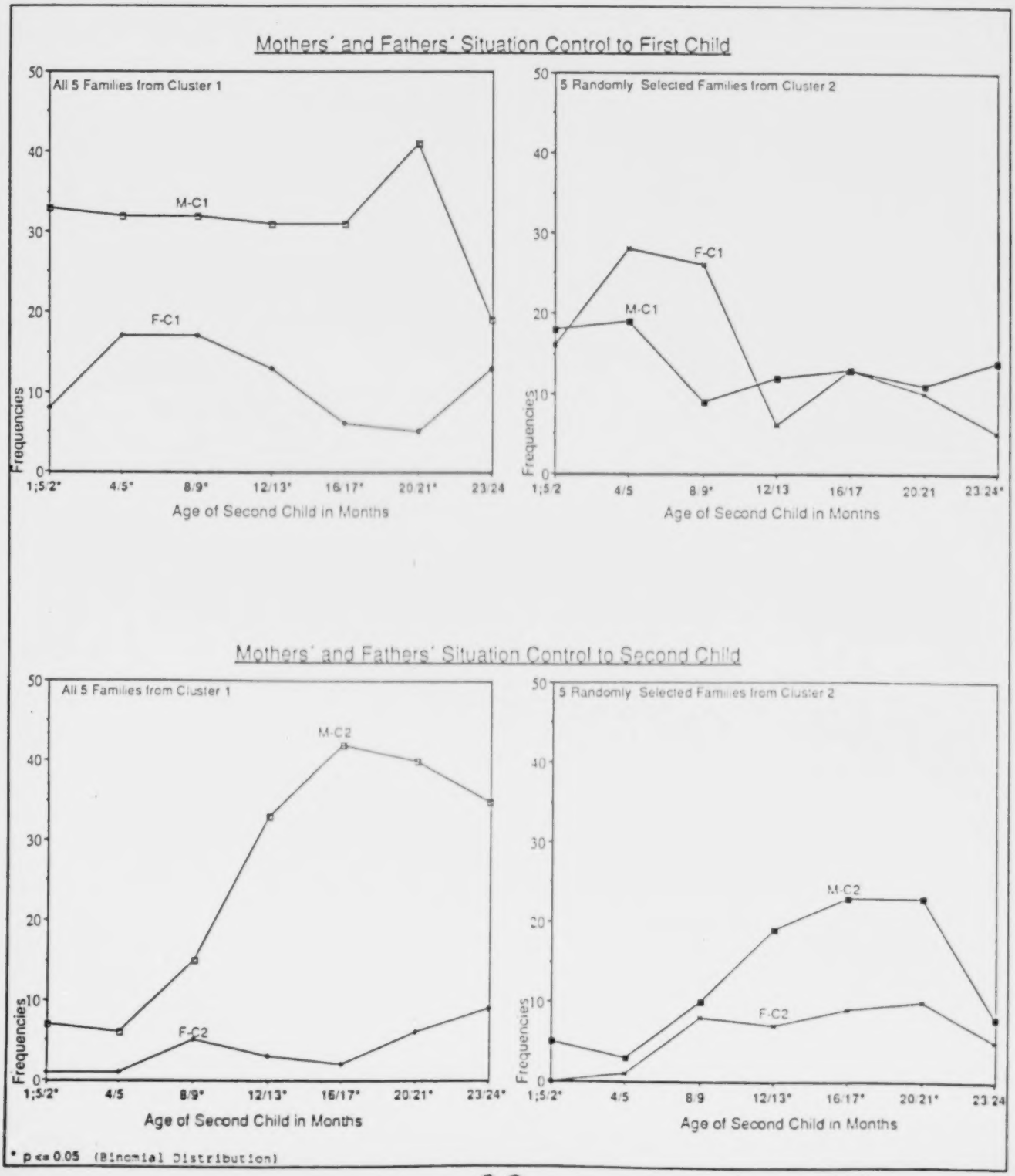
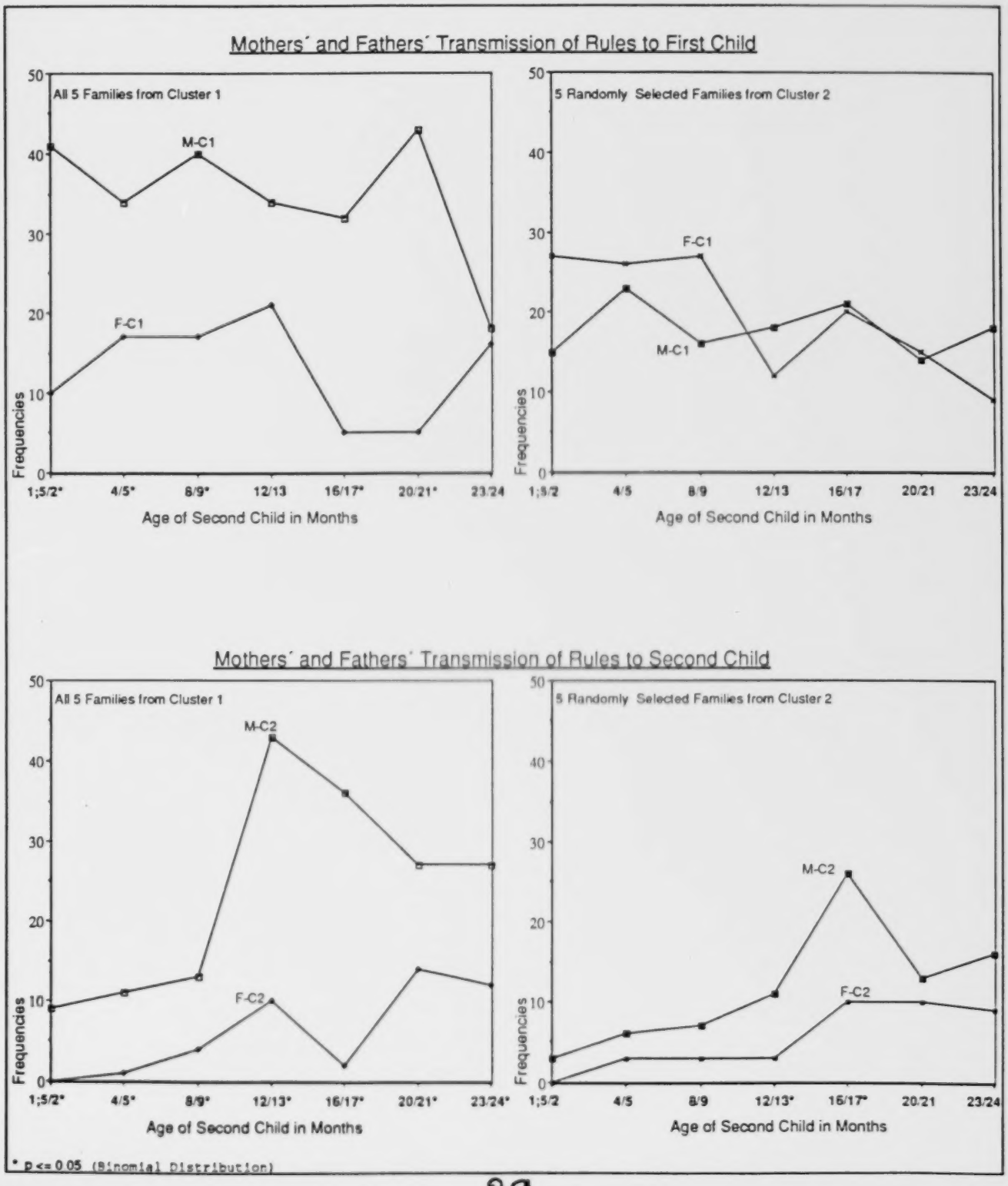


Figure 5

Parental Cooperation in Two Families Clusters over Time



* p <= 0.05 (Binomial Distribution)

Figure 6

Parental Cooperation in Two Families Clusters over Time